TECHNICAL REVIEW DOCUMENT FOR OPERATING PERMIT 970PMF194

to be issued to:

Questar Pipeline Company Powder Wash Dew Point Plant Moffat County Source ID 0810049

Prepared by Doris Jung on July 30, 1998 Revised by Ashley Kendall on October 20, 1998

I. Purpose

This document establishes the basis for decisions made regarding the Applicable Requirements, Emission Factors, Monitoring Plan and Compliance Status of Emission Units covered within the Operating Permit proposed for this site. It is designed for reference during review of the proposed permit by the EPA and during Public Comment. The conclusions made in this report are based on information provided in the original application submittal of December 24, 1997 and additional information submitted July 23, 1998. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

On April 16, 1998 the Colorado Air Quality Control Commission directed the Division to implement new procedures regarding the use of short term emission and production/throughput limits on Construction permits. These procedures are being directly implemented in all operating permits that had not started their Public Comment period as of April 16, 1998. All short term emission and production/throughput limits that appeared in the construction permits associated with this facility that are not required by a specific State or Federal standard or by the above referenced Division procedures have been deleted and all annual emission and production/throughput limits converted to a rolling 12 month total. Note that, if applicable, appropriate modeling to demonstrate compliance with the National Ambient Air Quality Standards was conducted as part of the Construction Permit processing procedures. If required by this permit, portable monitoring results and/or EPA reference test method results will be multiplied by 8760 hours for comparison to annual emission limits unless there is a specific condition in the permit restricting hours of operation.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to

operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised Construction Permit.

II. Source Description

The Powder Wash Dew Point Plant is co-located with Questar Gas Management's Powder Wash Compressor Station. For Title V and PSD purposes, the Division considers that the two facilities, Powder Wash Compressor Station and Powder Wash Dew Point Plant, constitute a single source. Questar Pipeline and Questar Gas Management have requested a separate Operating Permit for each facility. The primary activity at the site is natural gas refrigeration. Dew Point Plant contains an ethylene glycol regeneration unit, a propane refrigeration unit, and an internal combustion generator engine providing electricity to the Dew Point Plant. The purpose of the Dew Point Plant is to remove from the inlet gas sufficient amounts of heavier hydrocarbons to prevent condensation from forming in the residue gas system (lowers hydrocarbon dew point).

The facility is located approximately 50 miles northwest of Craig in Moffat County, in an area designated as attainment for all criteria pollutants. The facility is located within 50 miles of Utah and Wyoming and within 100 kilometers of two Federal Class I areas, Mount Zirkel and Flat Tops Wilderness Areas. Facility wide emissions for pollutants of concern, Nitrogen Oxides (NO_x), Carbon Monoxide (CO), Volatile Organic Compounds (VOC), and Hazardous Air Pollutants (HAPs) in tons per year (tpy) are as follows:

Pollutant	Potential to Emit (tpy)	Actual Emissions (tpy)		
NO_x	34.1	5.1		
CO	7.2	4.1		
VOC	52.9	13.4		
HAPs	0.3	0.3		

Facility wide potential emissions and actual emissions are based on data submitted with the Title V Operating Permit application. Potential and actual VOC emissions include fugitive VOC emissions from equipment leaks. Total emissions for the two facilities, Powder Wash Compressor Station and Powder Wash Dew Point Plant, are as follows:

Pollutant	Potential to Emit (tpy)	Actual Emissions (tpy)	
NO_x	411	154	
CO	64	35	
VOC	205	51	
HAPs	59	14	

This source is considered to be a major source in an attainment area (Potential to Emit > 250 tons per year) and is considered major for future purposes of Prevention of Significant Deterioration (PSD) regulations. Modifications up to this point in time have not triggered significance levels which would bring about PSD Review. Future modifications to this facility which are in excess of significance levels as defined in Colorado Regulation No. 3, Part A, Section I.B.58 will result in the application of the PSD review requirements.

This facility currently has no applicable MACTs. However, a MACT for Oil and Natural Gas Production and Natural Gas Transmission and Storage is scheduled to be promulgated in May 1999. Questar Pipeline indicated that this facility is not subject to 112(r). Questar Pipeline certified to operating in compliance with all applicable requirements at the time of their application submittal on December 24, 1997.

III. Emission Sources

The following sources are specifically regulated under the terms and conditions of the Operating Permit for this Site:

Unit P303 - Waukesha 4-Cycle Clean Burn Internal Combustion Engine, Model F18GL, S/N: 403053, 2.85 MMBtu/hr, 375 hp, Natural Gas Fired.

1. Applicable Requirements

This unit was first placed in service in 1990 and is permitted under the final approval Colorado Construction Permit 90MF242. The applicable requirements for this engine are as follows:

- NO_x: 14.5 tpy (Colorado Construction Permit 90MF242)
- CO:7.2 tpy (Colorado Construction Permit 90MF242)
- VOC: 7.2 tpy (Colorado Construction Permit 90MF242)
- Fuel use limited to 23.3 MMscf/yr (Colorado Construction Permit 90MF242)
- 20% Opacity limitation during normal operations (Regulation No. 1, Section II.A.1)
- APEN Reporting (Regulation No. 3, Part A, Section II)

The source requested an increase in the NOx emission factor and a decrease in fuel use. These changes result in the following limitation changes 19.9 MMscf/yr natural gas consumption and 34.1 tons per year for NOx. This increase in emissions is below the levels that trigger modeling requirements, therefore, modeling was not performed for this modification.

2. Emission Factors

Emissions from this engine are produced during the combustion process, and are dependent upon the air to fuel ratio adjustment, engine design specifications, and specific properties of the natural gas being burned. The pollutants of concern are NO_x , CO and VOC. Questar's fuel-based emission factors listed below were converted from their proposed horsepower-based factors as detailed on the attached Engineering Calculations worksheet. The AP-42 emission factors for 4-cycle lean-burn reciprocating engines from Table 3.2-1 and Questar's emission factors for the engine are as follows:

Pollutant Pollutant	AP-42 (lb/MMBtu)	Questar's (lb/MMBtu)
NO_x	3.2	3.2
CO	0.42	0.58
VOC	0.18	0.58

Questar's emission factors are greater than the AP-42 (EPA Compilation of Air Pollutant Emission Factors, October 1996) factors for all pollutants

3. Monitoring Plan

Emissions will be determined by multiplying Questar's emission factors by fuel consumption. Questar will be required to conduct the emissions calculations on a monthly basis with semi-annual reports and an annual compliance certification.

The Opacity standard of 20% will be demonstrated by the use of natural gas. Inspectors may verify this with EPA Method 9 opacity readings, if necessary.

A revised APEN must be submitted to the Division as required by Regulation No. 3, Part A, Section II.C.

4. Compliance Status

A current APEN reporting actual criteria emissions for the 1993 data year is on file with the Division for this engine. No records indicating non-compliance were found in a review of the facility's APCD files and the source certified in their application that they are currently in compliance with all applicable requirements. Therefore, this unit is currently considered to be in compliance with all applicable requirements.

Unit P503 - Key Engineering Ethylene Glycol Regeneration Unit, Model and S/N: Custom Built, 40 MMscf/day capacity.

1. Applicable Requirements

This unit was first placed in service in 1991 and has not been previously permitted. The APEN submitted by Questar for this unit reports actual emissions for the 1993 calendar year that are greater than the APEN deminimis level of 2 tpy. Questar asserted that this unit is exempt from permit requirements based on Regulation No. 3, Part B, Section III.D.3., which exempts emission units from permit requirements if the *facility* emits less than 5 tpy of VOC. However, total VOC emissions from this facility are greater than 5 tpy. Therefore, based on the latest APEN submitted, this unit is subject to permit requirements. Additional information and a revised APEN was submitted for this unit upon request on July 23, 1998. The applicable requirements for this unit are incorporated directly into the Operating Permit. The applicable requirements for this dehydrator are as follows:

- VOC: 7.14 tpy
- Natural gas throughput limited to 14,600 MMscf/yr
- APEN Reporting (Regulation No. 3, Part A, Section II)

2. Emission Factors

Ethylene glycol is contacted with the natural gas stream to remove moisture. This mixture is heated in the still portion of the unit which drives off the water and some entrained VOC through the still vent. Emissions from this process are typically predicted using the Gas Research Institute's GLYCalc Model Version 3.0 or higher. Emission factors of VOC and various HAPs are dependent upon the variables input into this Model. These variables include glycol recirculation rate, cubic feet of gas processed, cold separator temperature and pressure, and percentage breakdown by weight of constituents in the natural gas. Combustion emissions from the heater are exhausted through a separate stack. The heater for this unit is rated at 0.3 MMBtu/hr and falls under the insignificant activity category of Regulation No. 3, Part C, Section II.E.3.k. Therefore, emissions from the heater are considered an insignificant activity for the Operating Permit.

3. Monitoring Plan

Questar will use the GRI GLYCalc Model Version 3.0 or higher month to calculate emissions of VOC and HAPs from the still vent of this regeneration unit and to monitor compliance with VOC emission limitations. Monthly recording of inlet gas temperature and glycol recirculation rate, and quarterly gas analysis, will be conducted as outlined in Condition 2.1 of the Operating Permit to use in the GLYCalc model. Frequency of extended gas analyses shall move to semi-annual after the first year if BTEX concentrations remain consistent. Frequency of extended gas analyses shall move from semi-annual to annual if BTEX concentrations remain consistant for two consecutive semi-annual periods. Annual extended gas analysis is acceptable since HAP emissions are not close to the 10/25 tpy major source level. Frequency will revert back to quarterly if any of the BTEX constituents exceed the comparison criteria for any analysis. Frequency will remain quarterly until analyses indicates consistency for four consecutive tests, at which time required frequency will move to semi-annual.

A revised APEN must be submitted to the Division as required by Regulation No. 3, Part A, Section II.C.

4. Compliance Status

A current APEN reporting actual criteria emissions for the 1993 data year is on file with the Division for this dehydrator. No records indicating non-compliance were found in a review of the facility's APCD files and the source certified in their application that they are currently in compliance with all applicable requirements. Therefore, this unit is currently considered to be in compliance with all applicable requirements.

Unit F701 - Fugitive VOC Emissions from Equipment Leaks

1. Applicable Requirements

The Division has made the determination that Fugitive VOC emissions from equipment leaks at gas compression or processing facilities must be calculated and evaluated for the appropriate permitting requirements. This plant meets the definition of a Onshore Natural

Gas Processing Facility in Federal 40CFR60 Subpart KKK which contains requirements for inspection and monitoring of fugitive leaks at these facilities. Fugitive VOC emissions from equipment leaks are permitted under initial approval Colorado Construction Permit 94MF433. The applicable requirements are as follows:

- VOC: 38.6 tpy (Colorado Construction Permit 94MF433)
- APEN Reporting (Regulation No. 3, Part A, Section II)
- Routine Monitoring, inspection and maintenance, recordkeeping and reporting requirements of this Subpart KKK (40 CFR 60.633(d), Colorado Regulation No. 6, Subpart KKK)

The due date of the first semi-annual monitoring report required by this operating permit will be more than 180 days after the initial approval construction permit was issued and/or the equipment commenced operation. Therefore, the Division considers that the Responsible Official certification submitted with that report will serve as the self-certification for Colorado Construction Permit 94MF433 and the appropriate provisions of the construction permit have been directly incorporated into this operating permit.

Short and long term fuel throughput limitations, hourly VOC emission limitations and specified component counts from the Initial Approval Permit have not been incorporated into the Operating Permit as conditions. The Division has determined that an hourly fugitive VOC emission limit is not enforceable as a practical matter unless conditions are imposed requiring use of leak detection devices on each component. This is more than is required by Subpart KKK of the NSPS for this site. Fuel throughput limitations do not directly relate to fugitive emissions, and therefore are unnecessary in the Operating Permit. A limit on specific components restricts flexibility. As long as the source can demonstrate that they are under their annual limit for VOC, no restriction on the specific number of each component is required in the Operating Permit.

2. Emission Factors

Questar has calculated emissions from equipment leaks based on emission factors from EPA's Protocol for Emission Leak Estimates (EPA 453/R-95-017). Factors are multiplied by the number of components that are leaking based on their leak detection program of each type (e.g. Compressor Seals) and the VOC weight percentage in the organic portion of the gas stream as determined in the most recent analysis. EPA factors are given in terms of Total Organic Compounds.

3. Monitoring Plan

As a means of recordkeeping, Questar personnel must conduct an initial component count within 90 days of permit issuance to verify the existing hardware inventory. Records shall be kept of all component additions and deletions, and a running tally maintained. The calculation result will be compared to the annual VOC limit to determine compliance. In addition, a report detailing the steps that are and will be taken to demonstrate compliance with Subpart KKK of the New Performance standards will be required.

4. Compliance Status

A current APEN reporting actual criteria emissions for the 1994 data year is on file with the Division for fugitive emissions. No records indicating non-compliance were found in a review of the facility's APCD files and the source certified in their application that they are currently in compliance with all applicable requirements. Therefore, this unit is considered to be in compliance with all current applicable requirements.

IV. Insignificant Activities

The insignificant activities identified in the Title V Operating Permit Application by Questar are as follows:

Four (4) Condensate Tanks at Dew Point Plant, T606-T609, < 40,000 gal capacity each. Dew Point Plant Glycol Regenerator Unit Burner, P405, 0.3 MMBtu/hr.

Storage of Miscellaneous Chemicals for Maintenance and Operational Uses, < 5000 gal. Storage of Butane, Propane, and LPG, < 60, 000 gal.

Startup/Shutdown in Emergency Situations.

Miscellaneous Landscaping and Site Housekeeping Devices.

V. Alternative Operating Scenarios

There were no alternative operating scenarios requested.

VI. Permit Shield

No specific regulations were cited by Questar as non-applicable to this source.

VII. Short Term Limits Deleted from Operating Permit

Construction Permit	Emission Unit	Short Term Limit	
90MF242	P303	NO _x :	3.31 lb/hr
		CO:	1.64 lb/hr
		VOC:	1.64 lb/hr
		Fuel:	2,660 scf/hr
95MF433	F701	VOC:	8.8 lb/hr